

CHAPTER 5. DEVELOPMENT OF ALTERNATIVES

The development of alternatives for the SRWRS will focus on the water supply problem stemming from implementing WFA limitations on diversions from the American River without a Sacramento River diversion. The opportunities (ancillary benefits) of maintaining CVP operational efficiency and promoting preservation of the lower American River could be anticipated through the implementation of the selected plan to resolve the identified water supply problem, allowing a full realization of the WFA's vision for regional resources management.

This chapter describes the development of preliminary alternatives to meet the planning objectives while satisfying identified planning constraints. The alternatives will be subject to continued refinements throughout the development of the SRWRS.

OBJECTIVES TO BE ACCOMPLISHED BY ALTERNATIVES

To address the identified water supply problem, the following planning objectives for the SRWRS have been identified. These objectives will be used to guide alternative formulation and comparison.

- Providing additional water supply to PCWA to meet water demands resulting from planned urban growth.
- Providing additional water supply to SSWD to enhance the groundwater stabilization project.
- Providing additional water supply to Roseville to meet water demands resulting from planned urban growth and to facilitate a local conjunctive use program.
- Providing additional water supply capacity for Sacramento to ensure water supply reliability and to provide retail, wholesale, and wheeling services to neighboring water purveyors to meet the water demands and reduce groundwater reliance.

CRITERIA AND CONSTRAINTS FOR FORMULATING ALTERNATIVES

Formulating alternatives for the identified objectives is further subject to a series of planning criteria and constraints.

Planning Criteria

The identified planning criteria for the SRWRS include the following:

- Minimizing overall environmental impacts to the extent feasible.
- Being cost-effective.
- Complementing and enhancing the overall reliability of the Placer-Sacramento region's water supply system through increased interconnectivity and source redundancy.
- Being consistent with federal planning guidelines such as *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*.

- Being consistent with the environmental-preferred alternative of the programmatic ARWRI, including regional groundwater conjunctive management and no major dam construction in the upper American River basin
- Being consistent with the programmatic Water Forum Plan that is stipulated in the WFA, including limitations on surface water diversions from the American River and associated conditions; groundwater resource use in a sustainable manner; operation of PCWA's MFP for replacement water (mitigation water release); lower American River flow patterns, habitat management, and recreation; and water conservation and reclamation guidelines.

Planning Constraints

Planning constraints primarily consist of existing federal, State, and local laws, regulations, policies, and agreements as highlighted under. Constraints related to water delivery quantities considered in the SRWRS are discussed first and separately due to their prevailing significance for formulating alternatives.

Water Delivery Quantities

For the SRWRS, the cost-sharing partners would consider only alternatives using **existing** water rights and contract entitlements. **Table 5-1** presents a summary of requests for additional surface water diversions and treatment capacities necessary to balance projected 2030 demand and supply and to enhance water supply reliability.

Table 5-1. Water Delivery Quantities Considered in the SRWRS

Water Purveyor	Requested Maximum Additional Annual Water Deliveries (AF)	Source	Type of Use	Requested Treatment Capacities (mgd)	Purpose of Requested Treatment Capacities
PCWA	35,000	CVP	M&I	65	Max-day demand
SSWD	29,000 ^[1]	MFP	M&I	15	Reliability and redundancy
Roseville	7,100 ^[2]	MFP	M&I	10	Max-day demand
Sacramento	58,000 ^[3]	Water rights, water wheeling requests	M&I	165	Max-day demand (155 mgd) and redundancy (10 mgd)
Total	129,100			255	

^[1] For Water Forum average, drier, and driest years only; the WFA allows SSWD to exercise this entitlement in Water Forum wet years using diversion from the American River.

^[2] Roseville would only consider additional diversions from a river other than the American River.

^[3] The WFA does not establish a volumetric limitation for Sacramento's total diversion; the estimated additional water supply to meet its projected demand is about 58,000 AF per year, based on the difference between the projected demand and the simulated average diversion for Sacramento that could be realized using then-existing diversion facilities on the American and Sacramento rivers. However, Sacramento could divert up to 81,800 AF per year under its water rights on the Sacramento River at a new diversion by reducing the diversion under its Sacramento River water rights at its existing Sacramento River WTP downstream of the confluence with the American River.

Laws, Regulations, Policies, and Agreements

Development of the SRWRS will be consistent with the following federal, State, and local laws, regulations, policies, and agreements that govern the operation of statewide and local water supply systems. :

- Satisfying requirements stipulated in PL 106-554, the congressional authorizing legislation for the SRWRS, for completing a feasibility study for a Sacramento River diversion that is consistent with the WFA and includes the following components: 1) development of a range of reasonable options, 2) an environmental evaluation, and 3) consultation with federal and State resource management

agencies regarding potential impacts and mitigation measures. Furthermore, Congress requires the SRWRS be developed in coordination with CALFED.

- Observing existing applicable laws, regulations, water rights, contracts and agreements, including, but not limited to, the following:
 - California laws, in particularly Water Codes, and obligations of the cost-sharing partners in their charters and as defined in California laws.
 - CVPIA, especially the dedication of (b)(2) water from CVP contract entitlements.
 - SWRCB D-1641 and WQCP.
 - Existing water rights, local water contracts and/or agreements, CVP/SWP water service contracts.
 - NEPA, CEQA, and ESA, including BOs for the Sacramento River, the American River, and the Delta related to the operations of CVP, SWP, and local projects.

PRELIMINARY ALTERNATIVES

Each alternative identified for the SRWRS will include a plan for operating a package of water supply infrastructure components to meet water supply needs of the cost-sharing partners. The infrastructure components include new or expanded diversion(s) from the Sacramento, Feather, or American rivers, and new or expanded water treatment and pumping facilities, storage tanks, and major transmission and distribution pipelines.

The alternatives currently under consideration in the SRWRS (see **Figure 5-1**) include the proposed project with joint diversion and treatment facilities for all cost-sharing partners, and four alternatives. For these four alternatives, the partners may share facilities to a greater or lesser degree.

The proposed project and its alternatives are subject to continued development through a public scoping process, and further considerations on operations, legal, engineering, economic, and environmental issues.

Proposed Project: Elkhorn Diversion Alternative

The proposed project encompasses constructing a joint diversion from the Sacramento River and treatment facilities to serve the cost-sharing partners. The diversion facility would consist of expanding the existing Elkhorn Diversion owned by NMWC on the east bank of the Sacramento River, upstream of the mouth of the American River at approximately river mile 73.3, or constructing a new diversion near the existing Elkhorn Diversion. The proposed project would have a total discharge capacity of 345 cfs. Raw water would be lifted from the pump station to an 84-inch pipeline through which it would be conveyed to a new WTP. Treated water from the new WTP would be conveyed to serve SSWD via a transmission line that would connect to the service areas of the cost-sharing partners.

List of Major Existing Laws, Regulations, Policies, and Agreements Applicable to the Study

1902 Reclamation Act
 1917 Flood Control Act and subsequent Flood Control Acts
 Archaeological Resources Protection Act
 BOs for CVP and SWP Operations
 CALFED Program and Programmatic ROD
 California Department of Fish and Game Codes
 California ESA
 CEQA
 California Water Codes
 California Water Rights
 CVPIA
 Clean Air Act
 Clean Water Act
 Coordinated Operation Agreement
 CVP and SWP Water Service Contracts
 Delta Pumping Plant Fish Protection (4-Pumps) Agreement
 Executive Order 11988, Flood Plain Management
 Executive Order 11990, Protection of Wetlands
 Farmland Protection Policy Act
 Federal ESA
 Federal Water Project Recreation Act
 Fish and Wildlife Coordination Act
 Historic and Archaeological Data Preservation Act
 Indian Trust Assets
 Joint Use Agreement
 Magnuson-Stevens Fishery Conservation and Management Act
 Monterey Agreement
 NEPA
 National Historical Preservation Act
 Placer County Water Agency Act
 Porter-Cologne Act
 Protection of Historic Properties Act
 Resource Conservation and Development Program
 Sacramento Area Water Forum Agreement
 Safe Drinking Water Act
 San Joaquin River Management Agreement
 State Reclamation Board Water Code 8608 and 8571
 USACE Water Control Manual
 Urban Water Management Planning Act
 Vernalis Adaptive Management Plan
 Watershed Protection and Flood Protection Act

Implementing a Sacramento River diversion for the cost-sharing partners would require a change in the point of diversion for PCWA's CVP contract and for Sacramento's Sacramento River water right permit, and an exchange agreement between Reclamation and PCWA for SSWD and Roseville diversions under their contract entitlements from PCWA's MFP.

Sankey Diversion Alternative

A Sankey Diversion alternative assumes that PCWA, SSWD, and Roseville would divert water from the Sacramento River near the confluence of the Sacramento River and the Natomas Cross Canal and build separate treatment, storage, and transmission facilities to meet their needs. This diversion would be located at or near the second diversion that NMWC is developing under its CALFED-supported ABFSHIP. Sacramento would use groundwater to meet projected unmet demand or would divert separately from the Sacramento River at the Elkhorn site, and construct its own treatment and transmission facilities to serve its needs.

Feather River Diversion Alternative

A Feather River alternative assumes that PCWA, SSWD, and Roseville would divert water from the Feather River near Nicolaus and build separate treatment, storage, and transmission facilities to meet their needs. The CVP would not be able to supply water directly to any diversion location on the Feather River, and thus a further agreement with the SWP and possibly a modification to the Cooperative Operation Agreement would be required for this alternative.

Sacramento would use groundwater to meet projected unmet demand or would divert separately from the Sacramento River at the Elkhorn site, and construct its own treatment and transmission facilities to serve its needs.

American River Pump Station Alternative

An American River Pump Station alternative assumes that PCWA would expand its American River Pump Station near Auburn and construct new treatment and transmission facilities to serve its needs. The CVP would not be able to provide a reliable water supply to PCWA at this location and thus, PCWA would divert from its MFP water rights. Reclamation would need to reassign PCWA's CVP contract entitlement to MFP water sale contractors who divert water at Folsom Dam (SSWD, Roseville, or SJWD).

SSWD would divert from the existing SJWD diversion facilities at Folsom Dam. Roseville would increase use of groundwater to satisfy its needs in this alternative, but would have no additional surface water diversions. Sacramento would use groundwater to meet projected unmet demand or would divert separately from the Sacramento River at the Elkhorn site, and construct its own treatment and transmission facilities to serve its needs.

Folsom Dam Alternative

A Folsom Dam alternative assumes that PCWA and SSWD would use the existing or expanded diversion, treatment, and transmission facilities of SJWD at Folsom Dam. Roseville would increase use of groundwater to satisfy its needs in this alternative, but not have any additional surface water diversions. Sacramento would use groundwater to meet projected unmet demand or would divert separately from the Sacramento River at the Elkhorn site, and construct its own treatment and transmission facilities to serve its needs.

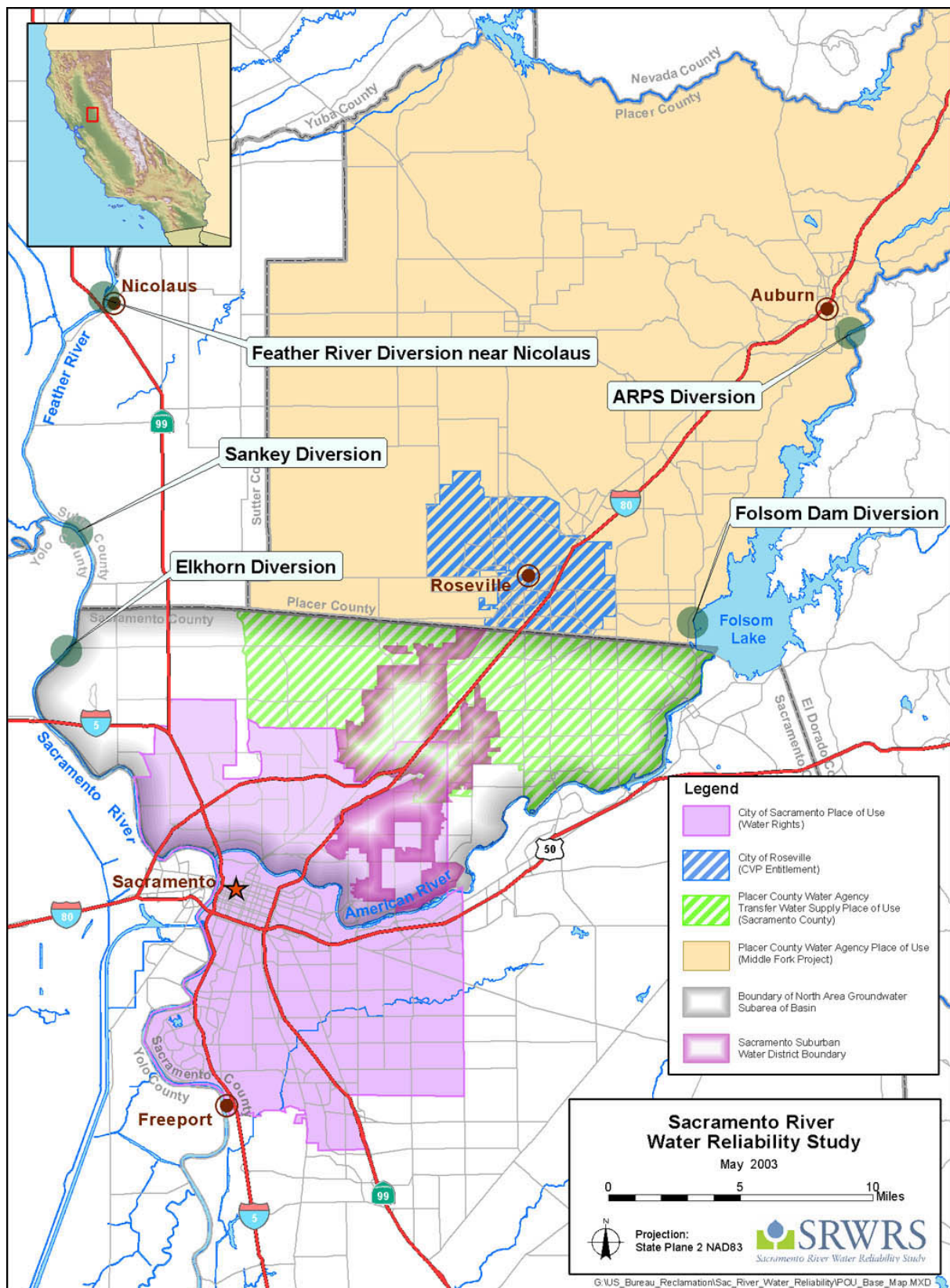


Figure 5-1. Diversion Locations for Alternatives Currently Under Consideration in the SRWRS

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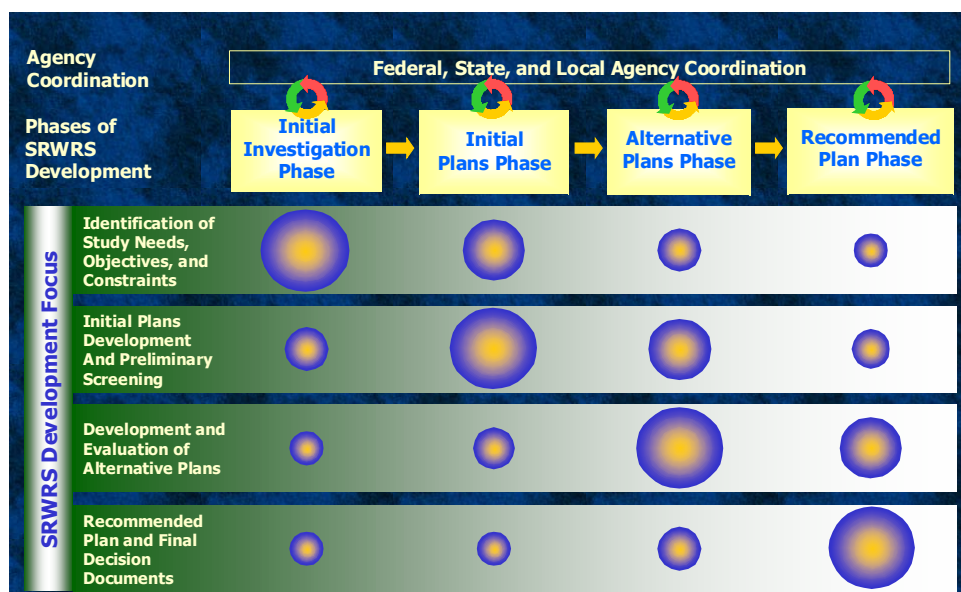
CHAPTER 6. NEXT STEPS OF SRWRS DEVELOPMENT

The SRWRS development consist of the following six steps:

- Identifying existing resource conditions and development of projected future resource conditions without implementation of a project (see **Chapter 4**).
- Defining water resources problems and opportunities to be considered in the SRWRS (see **Chapter 4**).
- Developing objectives for formulating alternative and associated planning criteria and constraints (see **Chapter 5**).
- Formulating potential solutions (alternatives) to meet the identified objectives while satisfying the planning criteria and constraints (see **Chapter 5** for preliminary alternatives).
- Evaluating and comparing potential effects of these alternatives including accomplishments in meeting objectives, resulting water supply and environmental impacts, and economic consideration.
- Recommending a plan for implementation based on the comparison of alternative plans.

These six steps can be generally incorporated into four phases of the SRWRS development, which include the following: (1) Initial Investigation Phase, (2) Initial Plans Phase, (3) Alternative Plans Phase, and (4) Recommended Plan Phase. Throughout these four phases, objectives and tasks of all phases will be considered; however, the primary focus will vary from phase to phase. For example, in the Initial Investigation Phase, the focus will be on problems, needs, and study objectives, but consideration must be given to the ultimate disposition of the decision document. By contrast, in the Recommendation Plan Phase, it will be necessary to reassure that the recommended plan addresses fundamental resources problems. The evolution of the primary study focus throughout the SRWRS development is illustrated in **Figure 6-1**.

Figure 6-1. Phases of SRWRS Development and Corresponding Focus



Progress in each phase will need to be coordinated closely with federal, State, and local agencies and stakeholders and their ongoing projects and programs. A continued effort for public involvement is also essential to the SRWRS.

The SRWRS is currently in the Initial Plan Phase of study development. Tasks to be performed during this phase include the following:

- Initializing public scoping process including issuing the Notice of Intent/Notice of Preparation (NOI/NOP) for the preparation of the EIS/EIR.
- Developing preliminary alternatives.
- Performing initial screening of preliminary alternatives.
- Initializing agency coordination and consultation.
- Continuing public involvement efforts.

List of Agencies for Study Coordination

California Department of Boating
 California Department of Fish and Game
 California Department of Transportation
 California Environmental Protection Agency
 California Reclamation Board
 National Marine Fisheries Service
 Natural Resources Conservation Service
 Reclamation District 1000
 Sacramento Area Flood Control Agency
 State Office of Historic Preservation
 State Lands Commission
 State Water Resources Control Board
 U.S. Army Corps of Engineers
 U.S. Environmental Protection Agency
 U.S. Fish and Wildlife Service

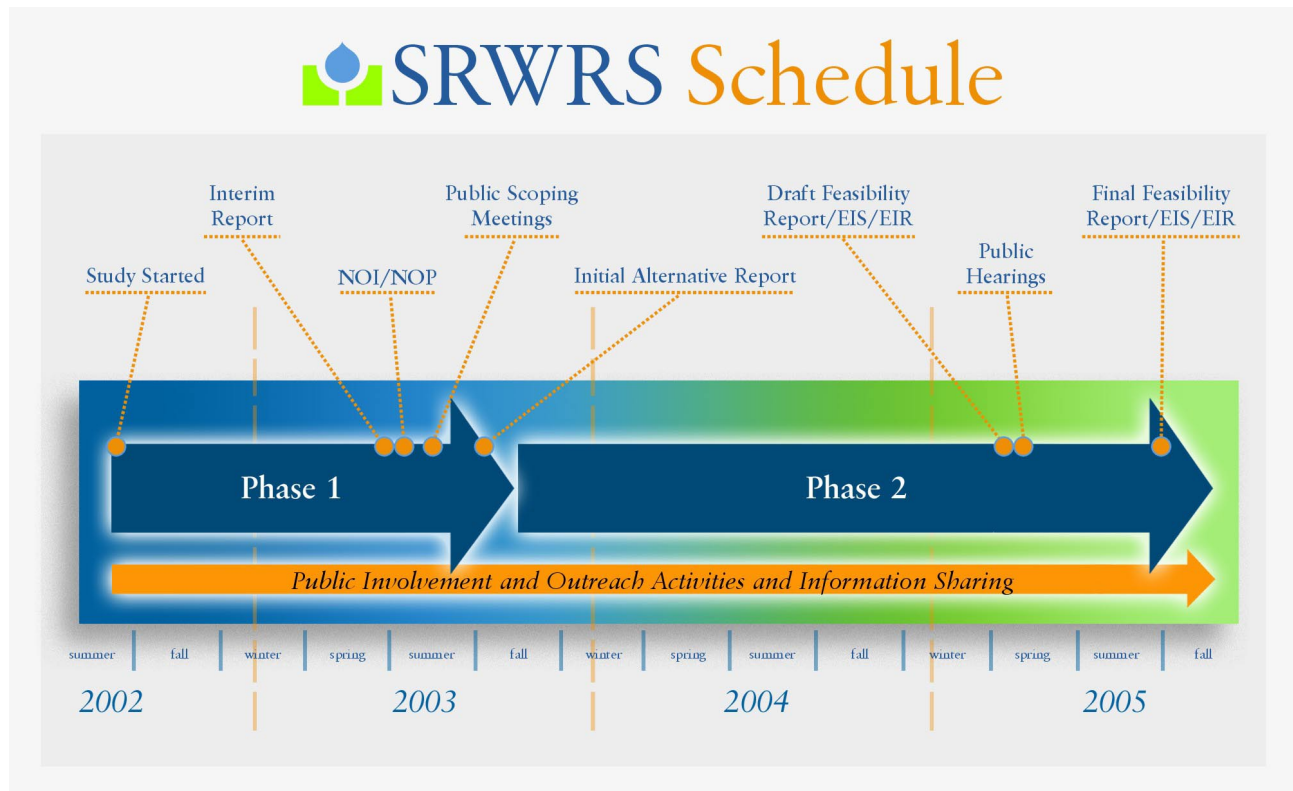
Upon completion of the Initial Plan Phase, the Alternative Plan Phase of SRWRS development will begin with evaluating alternatives for accomplishments in meeting the planning objectives, and associated environmental impacts and economic consideration. A biological assessment and draft EIS/EIR will be prepared in this phase, and a preferred alternative will be identified.

In the final phase of SRWRS development, the Recommended Plan Phase, the efforts would be devoted to completing ESA consultation, continuing public involvement and agency coordination, and finalizing feasibility study report/EIS/EIR. The developed technical information will be used to facilitate the necessary decisions associated with the implementation of the preferred alternative. These decisions include, but not limited by, a federal ROD and resolutions of cost-sharing partners for the SRWRS, necessary contract amendment and/or exchange agreements between cost-sharing partners and Reclamation, permits from SWRCB and other regulatory agencies necessary for diversion and/or construction.

The four phases of SRWRS development are roughly divided into two study phases for administrative purposes. **Phase 1** will cover the Initial Investigation Phase and Initial Plans Phase, focusing on alternative development, preliminary screening, and public involvement and outreach strategies. **Phase 2** will cover the Alternative Plan Phase and Recommended Plan Phase, emphasizing preparation of the feasibility report and environmental documentation. A tentative study schedule is shown in **Figure 6-2**. SRWRS completion is currently expected to span three years with a tentative completion date in 2005. The schedule is subject to revision to reflect progress in study development and agency consultation.

Upon completion of the SRWRS, the final feasibility report and environmental documentation will be submitted to the U.S. House of Representatives' Committee on Resources and to the U.S. Senate's Committee on Energy and Natural Resources, as required by the study authorization.

Figure 6-2. Tentative Schedule for SRWRS Development



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